



California **Nonpoint**Source CONFERENCE

October 23–25, 2001 • Holiday Inn Capitol Plaza
Sacramento, California

BIOSKETCHES AND ABSTRACTS

TUESDAY OCTOBER 23

9:00 AM–10:00 AM

WELCOME and KEYNOTE SPEAKERS

Ken Harris (moderator)

State Water Resources Control Board
Watershed Pollution Prevention Section
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Ken Harris works for the State Water Resources Control Board, where he is chief of the Watershed Pollution Prevention Section. He received a B.S. degree in soil and water science from the University of California, Davis, and a B.S. degree in earth sciences from the University of California, Santa Cruz. He has an M.S. degree in hydrology from the New Mexico Institute of Mining and Technology and is a California Registered Geologist.

Ken is the State Water Resources Control Board's Nonpoint Source Pollution Control Program manager. He is also responsible for the San Gabriel and San Fernando Valley Superfund Cooperative Agreements and manages three Costa-Machado Water Act of 2000 (Proposition 13) subaccounts. Under his supervision the SWRCB, working with the Regional Water Quality Control Boards and California Coastal Commission, recently developed the nation's first NPS Pollution Control Program Plan that meets all federal requirements of both the Clean Water Act and the Coastal Zone Act Reauthorization Amendments of 1990. As a result, the amount of federal funds available to the state for nonpoint source pollution control has doubled.

Arthur G. Baggett, Jr.

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Arthur G. Baggett, Jr., appointed by Governor Gray Davis, is currently serving as the attorney member of the five-member State Water Resources Control Board, which is responsible for protecting all water quality and water supplies in California. The Board is also responsible for the allocation of surface water supplies for agricultural, public trust, and urban purposes throughout the state.

Formerly an attorney of El Portal, California, Arthur has specialized in water, environmental, business, and family law. He previously served two terms on the Mariposa County Board of Supervisors (from 1987 to 1994), and he is the former chair of the Mariposa County Water Agency. He is also the former director of the Mountain Counties Air Basin and a past president of the Mariposa County Bar Association. Arthur has also taught at the Yosemite Institute, the Sierra Institute of the University of California at Santa Cruz, and the Yosemite Association and as adjunct faculty at Fresno State University.

In the area of resources, Arthur was an active member of the Executive Council of Biodiversity and served as host for one of the Sierra Summit meetings. His efforts in bringing diverse groups to the table to discuss and resolve complex resource issues facing rural California was of great help. The passage of the Lower Merced River Wild and Scenic River Amendment is an example of his ability to meld consensus among traditional antagonists.

Sara Wan

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Sara Wan is the chair of the Coastal Commission. She has an M.S. degree in biology from Yale University; an M.S. degree in electrical engineering from the University of California, Irvine; and a B.A. degree in zoology from Vassar College. Before joining the Coastal Commission, Sara had long been an environmental activist, working on land use, energy, oil, marine mammals, and other environmental issues affecting the coast of California. She sat on the boards of numerous environmental organizations and was vice chair of the League for Coastal Protection. In 1996 she cofounded Vote the Coast, a political action committee dedicated to helping coast-friendly candidates to be elected. Sara taught electrical engineering at California State University, Long Beach. She also founded and was chief executive officer of Maric, Inc., an engineering firm. She sold Maric in 1992 to devote her full time to environmental causes. She lives in Malibu, California, where her husband was once mayor.

Alexis Strauss

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Alexis Strauss is director of EPA's Water Division. She holds a B.A. degree and an M.A. degree from the University of California, Los Angeles (UCLA). Her responsibilities include implementing the Clean Water Act, Safe Drinking Water Act, and portions of the Marine Sanctuaries Act with Arizona, California, Hawaii, and Nevada and about 145 tribal governments. Alexis joined EPA in 1979.

Session **A** Grazing

Tuesday, October 23, 2001
10:30 AM–12:00 PM

TUESDAY OCTOBER 23

10:30 AM–12:00 PM

**Session A:
Grazing**

Dennis R. Heiman (moderator)
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Dennis is an environmental specialist with the California Regional Water Quality Control Board, Central Valley Region. He received his B.S. degree in fisheries biology and an M.S. degree in aquatic entomology from Michigan State University and received his Ph.D. in aquatic ecology from the University of California, Davis. For the past 28 years, he has worked for the State Water Resources Control Board and the Central Valley Regional Board. Past work assignments included water quality control plan development, review and regulation of timber harvest activities, and remediation of abandoned mine problems. In recent years, he has worked on a variety of nonpoint source pollution issues in the Regional Board's Redding office, including water quality problems from livestock grazing. He has been actively involved with support of locally directed watershed management programs throughout the northern portion of the Sacramento River basin.

Arroyo Pasajero Watershed Management

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BIOSKETCH

Linda Ballentine is the watershed coordinator for the Stewards of the Arroyo Pasajero Coordinated Resource Management and Planning Group (CRMP) in western Fresno County, California. She received her B.S. degree in wildlife management from the College of Natural Resources at the University of California at Berkeley and her M.S. degree in agribusiness from the School of Agriculture Sciences and Technology at California State University, Fresno. Most of Linda's career has been spent as an agricultural lender for major agricultural lending institutions and as a controller for a farming company. In 1997 Linda started her own firm, The Silent Associate, which provides managerial, analytical, and controller services to small businesses. Linda has been involved with the Stewards of the Arroyo Pasajero CRMP since September 2000. She is certified in Grant Management and Administration, and she is a member of Class XXII of the California Ag Leadership Program.

Orrin Sage
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BIOSKETCH

Orrin Sage is a principal with Sage Associates in Santa Barbara, California. He received his B.A., M.A., and Ph.D. degrees in geological sciences from the University of California, Santa Barbara. Since 1972 he has prepared environmental and agricultural impact assessments, ranch management plans, and watershed studies for private landowners and public agencies. Orrin is a California-Certified Rangeland Manager and a Certified Erosion and Sedimentation Control Specialist.

ABSTRACT

In 1999 Sage Associates prepared a regional watershed management plan for the 1,370-square-kilometer (529-square-mile) Arroyo Pasajero watershed in western Fresno County, California. California aqueduct design, coupled with unanticipated watershed runoff, erosion, and sedimentation, has jeopardized the operation of a portion of the aqueduct. Private landowners, state and federal agencies, and state water contractors have formed a Coordinated Resource Management and Planning (CRMP) group. The CRMP's mission is to assess watershed management strategies and to implement in-the-field management options to reduce erosion and sedimentation as formulated in the plan. Modified rangeland and cropland management practices, as described in the plan, allow for redistributing livestock from riparian corridors, terraces, valleys, and foothills into upland areas and for protecting selected lower watershed stream banks. Watershed-wide grazing, farming, and habitat enhancements and priorities have been identified; these include water development, fencing, prescribed burn management, exotic plant removal, stream bank stabilization, and required implementation, maintenance, and monitoring. These practices will optimize the use of the grazing and riparian areas, improve water quality, improve cattle distribution, improve herd management options, enhance riparian and wildlife habitats, and help stabilize stream bank erosion areas. To date, site-specific individual ranch and farm plans are being prepared and implemented on more than 48,563 hectares (120,000 acres) of the watershed area.

Rangeland Stewardship in the Southern Alameda Creek Watershed

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BIOSKETCH

Sheila Barry is the Bay Area Natural Resource Advisor for the University of California Cooperative Extension. She works in Alameda, Contra Costa, San Francisco, San Mateo, and Santa Clara Counties addressing natural resources issues in relation to watershed and open space management. Her program includes outreach and education to public and private landowners and managers, as well as applied research. Sheila is a certified Rangeland Manager licensed by the California State Board of Forestry, and she is a director of the California Society of Range Management and the California Native Grass Association. She is also a recent graduate of the California Agricultural Leadership Program. Sheila has an M.S. degree in animal science and rangeland management from Texas A&M and B.S. degrees in agricultural science and management, and international relations from the University of California, Davis.

ABSTRACT

The Southern Alameda Creek watershed encompasses 175 square miles of rolling grasslands and oak woodlands in the eastern parts of Alameda and Santa Clara counties. Although this watershed is adjacent to substantial urban populations, it remains largely undeveloped and provides for an impressive array of aquatic and terrestrial species, including rainbow trout, steelhead trout, salmon, tule perch, California red-legged frogs, and western pond turtles. This watershed is also part of San Francisco's water system, providing drinking water to more than 2 million people. Part of the watershed is owned and managed by the San Francisco Public Utilities Commission, but more than 40 percent of the watershed is in private ownership. The predominant use of public and private lands in this watershed is cattle grazing.

Within the watershed, roads, vegetation management, livestock grazing, wildlife, and recreation contribute to nonpoint source pollution (sediment, nutrients, and/or pathogens). In addition to threatening biological diversity, these contaminants can threaten the quality of municipal drinking water supplies and the health of the San Francisco Bay. This project developed and began implementing source water protection strategies, which were outlined in a plan for the Southern Alameda Creek watershed based on Hazard Analysis Critical Control Points (HACCP). HACCP is a systematic approach that works to eliminate potential contaminants before they can enter source water. Based on this approach, the following source water protection strategies are being implemented:

- Coordination of landowners and grazing lessees to control feral pigs.
- Application of erosion control measures at sites identified by landowners in their ranch water quality management plans.
- Promotion of grazing management practices such as controlling distribution, stocking rate, and season of use to enhance perennial vegetation and improve the overall health of the watershed.
- Outreach to public agencies and private landowners to foster collaboration in implementing watershed management strategies.

Grazing for Change: Range and Watershed Management Success Stories in California

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BIOSKETCH

Dan Macon is the coordinator for the High Sierra Resource Conservation and Development Council in Auburn, California. He is responsible for developing and implementing economic development and resource conservation projects in El Dorado, Placer, Nevada, Yuba, and Sierra Counties.

Dan received his B.S. degree in agricultural and managerial economics from the University of California, Davis. He is also an alumnus of the California Agricultural Leadership Program and the Missouri Auction School. Before joining the High Sierra Resource Conservation and Development Council, Dan served as the first executive director for the California Rangeland Trust, a land trust organized by the California Cattlemen's Association. He also founded the consulting business AgResource Solutions. Dan has also served as the executive director of the California Farm Water Coalition, as assistant vice president of the California Cattlemen's Association, and as agricultural specialist for Macon Brothers Auctioneers. Dan is the president-elect of the California Section of the Society for Range Management, and he serves on the Agricultural Advisory Council of the California State Fair.

ABSTRACT

Grazing for Change describes successful range and watershed management practices currently in place on ranches throughout California. The publication was funded through grants from the Environmental Quality Incentives Program, the U.S. Environmental Protection Agency, and the Livestock Memorial Research Fund. The California Cattlemen's Association sponsored the publication.

With guidance from a steering committee that included ranchers, researchers, conservationists, and agency staff, ranches and watershed groups were selected to provide examples of successful watershed and rangeland management tools currently in use in California. These tools include off-stream water development, rotational grazing systems, resource management planning, conservation easements, native plant restoration, and community collaboration. The publication contrasts current management with historical approaches and outlines the environmental and economic benefits achieved on each ranch. It also describes the monitoring programs in use in each example. It has been widely distributed to ranchers, legislators, land managers, wildlife managers, researchers, conservationists, and the public. The publication has been recognized by the National Agricultural Marketing Association and the Livestock Publications Council have recognized the publication.

Session

Minimizing the Impacts from Development

Tuesday, October 23, 2001
10:30 AM–12:00 PM

TUESDAY OCTOBER 23

10:30 AM–12:00 PM

**Session B:
Minimizing the Impacts from Development**

Lisa Horowitz McCann (moderator)
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Lisa Horowitz McCann is the supervisor of the Watershed Assessment Unit at the Central Coast Regional Water Quality Control Board, the team responsible for determining which rivers and streams have water quality problems and for developing and managing watershed improvement and protection (largely through Total Maximum Daily Loads).

Lisa received her B.A. degree in environmental studies/water resources from the University of California, Santa Barbara, and her M.S. degree in hydrologic science from the University of California, Davis. For the past 10 years, she has worked in many programs of the Regional Water Quality Control Boards, including storm water management, nonpoint source pollution control, and watershed management. She has worked closely with municipalities in the San Francisco Bay area to develop ways to minimize water quality impacts of new development and managed the 319 grant project to develop the *How-To Guide for Municipal Urban Runoff Programs*. She has developed and promoted implementation of many other nonpoint source pollution control strategies and watershed management, both statewide and in the Central Coast area.

New Development and the Basin Urban Runoff Program

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BIOSKETCH

Robert was born in London, England, at the beginning of the swinging 1960s, and both of his parents were “hip” artists. He has a B.S. degree in marine biology and once had visions of being the next Jacques Cousteau. He spent one year selling drugs (legally, as a pharmaceutical rep with a German company). He then came to California to start an oyster farm, but the venture failed because of sea lion fecal problems. Robert is currently working as a division manager for a coastal city and as an independent consultant.

ABSTRACT

BURP is the son of MURP (which sounds like a Star Trek episode). BURP is the Basic Urban Runoff Program, and it was jointly developed by the City of Watsonville, the Monterey Bay National Marine Sanctuary, and The California Coastal Commission. The aim of BURP is to provide a straightforward approach to achieving compliance with EPA's Stormwater Phase II rule.

The presentation discusses the following topics:

1. Is development really bad?
2. What does good development look like?
3. Do we need to hire Stephen Hawking for this?
4. Promoting pervious surfaces
5. Detention—good, bad, and ugly
6. How to get developers on-board (the carrot and the stick)
7. What to do after the construction is complete and the buildings are occupied
8. The case for roofing
9. What about *E. coli*?

Lake Tahoe Basin Erosion Control Best Management Practices

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BIOSKETCH

Matthew Graham is a Certified Professional in Erosion and Sediment Control (CPESC) and a senior environmental specialist with the Tahoe Regional Planning Agency (TRPA). He is currently completing an M.S. degree in environmental science from California State University, Fullerton (CSUF). He prepared a research grant proposal to obtain funding for his thesis, titled Fate and Transport of Two-Stroke Snowmobile Emissions to Water Quality. He also received a research grant from CSUF and a 501(c)(3) nonprofit corporation, Earth Island Institute. He has a B.S. degree in geography with an environmental analysis concentration from CSUF.

Matthew is responsible for managing TRPA's best management program (BMP) retrofit program and has successfully acquired more than \$800,000 in grant funds to build this vital program. This program is the primary nonpoint source program in the Lake Tahoe Basin. Matthew has performed hundreds of erosion control evaluations and prescriptions for residential and commercial properties. He has conducted dozens of community and neighborhood best management practices workshops. He has scheduled meetings with stakeholders, including local, regional, state, and federal representatives and property owners, to effectively communicate the goals of TRPA's BMP retrofit program. He has facilitated the creation of a unique geographic information system (GIS) database and associated maps using the TEGIS database and spatial analysis software, ArcView.

ABSTRACT

The Tahoe Regional Planning Agency (TRPA) is responsible for "leading the cooperative effort to preserve, restore, and enhance the unique natural and human environment of the Lake Tahoe Region." In light of this responsibility and in an effort to attain the Agency's water quality threshold standards, TRPA is implementing a public education and instructional outreach program aimed at increasing best management practices (BMP) implementation on private residential, commercial, and public service properties in the Lake Tahoe Basin. This interdisciplinary proactive program, modeled after the "Plan for California's Nonpoint Source Pollution Control Program," will directly and indirectly increase installation of BMPs, thereby reducing the amount of nutrients and sediment that reaches Lake Tahoe and its tributaries. The BMP Retrofit Program is a critical component of TRPA's Environmental Improvement Program (EIP) which is an integrated improvement program designed to accelerate the achievement of environmental threshold carrying capacities established for the Lake Tahoe Region. It is designed to accomplish, maintain, or exceed multiple environmental goals through an integrated, proactive approach. The estimated cost for retrofitting existing development with appropriate BMPs a major EIP component, is \$90 million.

This program is the primary basin-wide nonpoint source program for Lake Tahoe. It provides technical guidance on BMP selection, based on such factors as slope, soil type, amount of impervious area, geographic location, precipitation, and land use. The program is continuing to explore the use of new technologies that might be more effective in the capture and treatment of storm water runoff than traditional methods.

TRPA has created a five-pronged management program to facilitate the implementation of BMPs. The five major pillars of this program include (1) proactive education and public outreach campaign, (2) one-on-one technical assistance with property owners to conduct parcel-specific BMP evaluations, (3) the creation of a multiagency task force to implement BMPs, (4) BMP

effectiveness monitoring, and (5) tracking BMP installations for future operation and maintenance activities and to assess implementation successes. Both pollution prevention and pollution control are cornerstone approaches for the comprehensive BMP Retrofit Program.

TRPA developed a prioritization system to rank and classify Lake Tahoe's 63 tributaries (subwatersheds) based on nutrient and sediment loading rates. These subwatersheds are assigned into one of three categories, with category one (Priority One) being most sensitive and category three least sensitive. Priority watersheds provide an important biophysical planning tool for storm water management. This tool provides the capability of phasing-in BMPs on the most sensitive watersheds first.

This program has achieved measurable results in many different nonpoint source pollution prevention management measures, ranging from increased community involvement and awareness of storm water runoff to "on-the-ground" water quality improvements. Another key feature built into the NPS program is that it is designed to be flexible and adaptable over time. This adaptive management framework allows TRPA us to reexamine the overall program effectiveness and make management decisions to increase the success of this program.

Erosion Control for Residential Grading in Mariposa County

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BIOSKETCH

Jerry Progner is the District Resource Conservationist for the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) in Mariposa County, California. He received his B.S. degree in soil and water science from the University of California, Davis. He has been with the NRCS for 30 years, working in Stanislaus, Mendocino, Alameda, Merced, and Mariposa Counties. As a partner with the Mariposa County Resource Conservation District, he has been responsible for obtaining more than \$1.1 million in grant funding for outdoor education, wildland fuel reduction, and sediment reduction in rural residential settings.

ABSTRACT

This project provides the technical assistance necessary to implement the County Grading Ordinance in an effort to reduce erosion and sedimentation at construction sites in the rural settings of Mariposa County, California.

The Mariposa County Grading Ordinance was adopted in 1979 as a component of the county's building and construction code. Unfortunately, the building department admittedly did not have the technical ability or staff needed to provide this kind of assistance to landowners and contractors. Consequently, the ordinance languished and was essentially not used. As growth and new home construction continued, it became apparent that uncontrolled erosion was affecting the water quality of the county's surface waters. In 1994 the Mariposa County Resource Conservation District (RCD) submitted a proposal to the Water Resources Control Board to obtain funding under section 319(h) of Clean Water Act. This proposal represented a collaboration among the RCD, the County Board of Supervisors and Building Department, and the NRCS. Each of these groups, as well as the U.S. Environmental Agency, provided the funding to make the project succeed.

The project established a routine by which each building permit application would be routed through the RCD. The erosion control specialist would visit the site to determine whether the project would exceed any of the parameters within the ordinance that would require a grading permit. If so, an erosion control plan containing standards and specifications would be completed for that project. The building permit would not to be finalized and a certificate of occupancy would not be issued until this plan had been implemented.

Session A

Creating Community Partnerships Through Citizen Monitoring

Tuesday, October 23, 2001
1:30 PM–3:00 PM

TUESDAY OCTOBER 23

1:30 PM–3:00 PM

Session A:
Creating Community Partnerships Through Citizen Monitoring

Dominic Gregorio (moderator)
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Dominic Gregorio is an environmental specialist and regional citizen monitoring coordinator for the California State Water Resources Control Board. He received a B.A. degree in geography and earth and marine science and an M.S. degree in environmental biology from California State University, Dominguez Hills. Dominic worked for 7 years as an environmental coordinator for Texaco USA, specializing in marine biological surveys and studies associated with impacts of offshore oil drilling. He has been a biology instructor at Cypress College and at California State University, Dominguez Hills. Before working for the state board, Dominic was an environmental projects coordinator and water quality researcher at the Southern California Marine Institute.

**Russian River Watershed: Voluntary/Cooperative
Approach for Attaining Water Quality Objectives**

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BIOSKETCH

Jim Harrington is the state water quality biologist for the California Department of Fish and Game (DFG), based at the Water Pollution Control Laboratory in Rancho Cordova. He received his B.S. degree in fisheries and his M.S. degree in watershed management from Humboldt State University in Arcata, California. Jim has worked for DFG since 1987 and for DFG's Water Pollution Control Laboratory since 1991. His duties include investigating biological effects of toxic spills, designing water quality monitoring projects for DFG and various government agencies, and supporting DFG's regional water quality biologists. Jim established DFG's Aquatic Bioassessment Laboratory in 1993, and since then he has been supervising efforts in developing techniques, conducting projects, and promoting the use of biological indicators for use in California water quality regulation.

ABSTRACT

The purpose of this project was to produce an Index of Biological Integrity for the Russian River watershed, demonstrate a bioassessment technique called the California Stream Bioassessment Procedure (CSBP), and develop a standardized bioassessment technique for use by citizen monitors. This project was a cooperative effort of the California Department of Fish and Game (DFG), the Sotoyome-Santa Rosa Resource Conservation District, and the North Coast Regional Water Quality Control Board.

Biological assessment and criteria in state and tribal water quality standards programs are a top priority of EPA. DFG has been promoting the use of the CSBP in California for collecting the data necessary to develop water quality standards based on biological communities (biocriteria).

The CSBP is a cost-effective tool that uses measures of the stream's benthic macroinvertebrate (BMI) community and its physical habitat structure. One of the fundamental uses of bioassessment is to determine the effectiveness of best management practices (BMPs) or of any activity aimed at improving the quality of aquatic systems. Nonpoint source programs have been used to improve the quality of streams damaged by past or present land-use practices. Measuring the response of BMIs to restoration activities using a standardized procedure like the CSBP should be a requirement of all aquatic habitat restoration projects. Furthermore, stakeholders should be involved with monitoring the effectiveness of nonpoint source programs because they are an integral part of implementing BMPs.

This project was successful in developing, demonstrating, and promoting the use of the CSBP for citizen monitors. Since the completion of the project, hundreds of California citizens have been trained and are now involved with bioassessment programs. Some organizations, such as the Sotoyome-Santa Rosa Resource Conservation District, have expanded the use of citizen monitors following this project, but primarily using chemical analysis. Other citizen groups, such as the Truckee River Aquatic Monitors (TRAM), have fully developed their expertise in conducting bioassessment monitoring.

Los Angeles Volunteer Monitoring and Education

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BIOSKETCH

Karin Wisenbaker is the Environmental Project Coordinator for the Southern California Marine Institute (SCMI). Karin received her B.S. degree in environmental biology from California State University, Northridge (CSUN). While at CSUN, she assisted in funded research studies on San Diego Bay nearshore fish assemblage and the white seabass hatchery project. Karin has worked at SCMI as a marine biological technician since 1995. She teaches marine biology and oceanography to college and K-12 students in the laboratory and on research vessels. She has also worked on research projects, including DDT toxicology analysis of white croaker and the Southern California Bight Project (Bight '98). Karin was recently promoted to environmental project coordinator, and in that role she is responsible for laboratory and field analysis, environmental education, and coordinating citizen monitoring activities.

ABSTRACT

The Southern California Marine Institute (SCMI) is a consortium of eight universities, including six California State University (CSU) campuses, the University of Southern California (USC), and Occidental College. SCMI has been involved in supporting the growth of volunteer monitoring programs in the greater Los Angeles area since 1995.

In 1995 SCMI established the environmental monitoring program for 5th through 12th grade students, emphasizing hands-on monitoring and the effects of nonpoint sources of pollution. SCMI provides technical assistance, quality assurance services, and coordination of monitoring efforts. It contracted with the State Water Resources Control Board in 1996 to provide the first train the trainers workshops, to provide starter instruments, and to evaluate quality assurance. SCMI also signed and participates in the areawide volunteer monitoring quality assurance program plan. SCMI provides quarterly calibration and training sessions to citizen monitors.

Reduction of Pollution/Sedimentation in Tributaries of the Sacramento River Through Citizen Volunteer Watershed Education and Stewardship

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BIOSKETCH

Rich Gresham is the consulting district manager of the Placer County Resource Conservation District. He received a B.A. degree in geography, with an emphasis on environmental planning and physical geography, and a Master of City and Regional Planning degree from California State University, Fresno.

In addition to serving as consulting district manager for the Placer County Resource Conservation District, Rich has contracted with the State Association of Resource Conservation Districts for various projects, served as coordinator for the Placer County Flood Control and Water Conservation District, developed and implemented an education program for recycling in cooperation with the Western Placer Waste Management Authority, and developed and implemented fire safety defensible space and healthy forest programs in cooperation with the California Department of Forestry (CDF) and local fire districts in Meadow Vista, Colfax, Iowa Hill, and Foresthill. He was project manager for preparation of the Meadow Vista Program Timberland Environmental Impact Report under contract to CDF. Rich also serves as technical advisor to the American River Watershed Institute.

ABSTRACT

The purpose of this project is to demonstrate effective citizen monitoring efforts in various watersheds. The Clean Water Act funded these efforts over a period of 3 years, and they continue through a variety of funding sources. Jim Harrington provided macroinvertebrate quality assurance/quality control protocol training, and Dominic Gregerio provided guidance to the Resource Conservation District for a consistent and appropriate Quality Assurance Project Plan. Following the appropriate protocol, each of the watershed groups has begun a specific endeavor to collect background data to assist in determining existing stream health and logging data to be used as a guide for future reference. In some watersheds, reference collection of macroinvertebrates is used for training and educational purposes.

Session

Protecting and Restoring Watersheds with Timber Operations

Tuesday, October 23, 2001
1:30 PM–3:00 PM

TUESDAY OCTOBER 23

1:30 PM–3:00 PM

Session B:
Protecting and Restoring Watersheds with Timber Operations

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Frank Reichmuth is the supervising water resource control engineer in charge of the Timber Harvest Division, consisting of 28 staff. Frank graduated from Humboldt State University with a degree in environmental engineering, and he holds a Professional Civil Engineer license in the state of California. He has worked as a full-time employee since 1973 with the Regional Water Quality Control Board. His career began with inspections of timber harvest plans, and he has played an integral part in the development of the Regional Water Board's timber harvest regulatory program for 27 years.

Garcia River Watershed Project

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BIOSKETCH

Tom Schott is the district conservationist for USDA's Natural Resources Conservation Service (NRCS) in Mendocino County, California. Tom received his B.S. degree in forest ecology from the University of Minnesota. He worked as a Forester for the USDA Forest Service and the USDI Bureau of Land Management, in Minnesota, Montana, and Northern California. Since 1981 Tom has worked for NRCS on soil surveys in Mendocino County and on numerous watershed restoration projects as a watershed coordinator and technical advisor.

ABSTRACT

The Garcia River watershed is a 72,000-acre coastal drainage in southwestern Mendocino County, approximately 120 miles north of San Francisco, California. This 303(d)-listed watershed is impacted by sediment, much of which is generated from roads from past logging activities, especially roads that predate the passage of the Forest Practices Act.

319(h) funds were used to improve road drainage by installing properly sized culverts, installing rolling dips and outsloping road surfaces, and removing old landings and stream crossings that have directly routed sediment into Garcia River tributaries. Bridge installations helped to remove fish migration barriers and sediment deposits. To encourage future improvements, training Licensed Timber Operators and landowners in the use of proper drainage techniques was also an important part of the project. Project permitting and contract requirements for a 10 percent retention from each invoice until the end of the project (multiple years) presented challenges to the contractor.

Humboldt Bay Watershed Enhancement Program

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BIOSKETCH

Ruth Blyther is the co-director of the Natural Resources Services division of Redwood Community Action Agency, a community-based nonprofit organization based in the Humboldt Bay watershed, California. She received her B.S. degree in plant sciences from the University of California, Davis, and her M.S. degree in watershed management from Humboldt State University. Ruth began working in watershed restoration as a fisheries habitat laborer in the early 1980s. She spent 3 years in southern Africa conducting research on wetland ecology. Ruth is currently serving as a watershed coordinator working with the Humboldt Bay Watershed Advisory Committee. She is also a planning commissioner for Humboldt County, the vice president of the Jacoby Creek Land Trust, and a board member of the North Coast Regional Land Trust. Ruth is the project manager for two 319(h) grants focused on sediment reduction and fish habitat.

ABSTRACT

The purpose of this project was to improve water quality and enhance fisheries habitat in the Humboldt Bay watershed. Project objectives included (1) reduction of upslope sediment sources; (2) removal of fish passage barriers, installation of in-stream structures, construction of livestock exclusion fencing, and riparian corridor revegetation; (3) initiation of a coordinated monitoring program to evaluate the long-term effectiveness of watershed restoration efforts; (4) community outreach relating to the importance of water quality in urbanized streams; and (5) assisting K-12 students in exploring stream environments through after-school programs.

This was a cooperative project involving the Redwood Community Action Agency and a diversity of partners, including Humboldt County Public Works, Bureau of Land Management, City of Arcata, Pacific Coast Fish Wildlife and Wetlands Conservation Association, Coastal Streams Restoration Group, Humboldt State University, Salmon Forever, Zane Junior High School, and Straight Up Americorps.

The Humboldt Bay Watershed Advisory Committee (HBWAC) is a collaborative watershed group of stakeholders, including government agencies, timber and agricultural representatives, restoration groups, community watershed organizations, and environmental organizations. HBWAC provided technical advice and guidance during the project.

Projects were developed and implemented throughout the watershed. They include culvert replacement for sediment reduction and fish passage, road decommissioning, road maintenance, riparian revegetation, livestock exclusion fencing, and in-stream structure placement. The project also developed a coordinated monitoring program document for the watershed, compiled information on existing monitoring programs, and assisted with ongoing monitoring activities.

The project assisted a variety of monitoring projects, including the establishment of baseline cross section and longitudinal profile sites, turbidity monitoring and analysis, establishment of an automatic ISCO sampling station, photo monitoring of decommissioned roads and riparian revegetation sites, and direct observation monitoring to determine fish use of constructed, large woody debris structures.

Truckee River Watershed Council

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BIOSKETCH

Kathleen is president and executive director of the Truckee River Habitat Restoration Group, a nonprofit corporation. She graduated from Cornell University with a B.A. degree in history. Kathleen's professional experience was as a vice president of Wells Fargo Bank. Since retiring from a career in banking and moving to Truckee, California, she has dedicated her time and

energy to bringing the right people together to achieve workable solutions on a variety of emerging local issues. She was the town of Truckee's first mayor and is a founding board member of the Truckee-Tahoe Community Foundation. While serving as mayor, she recognized that the environmental health of the Truckee River watershed is synonymous with the economic health of the Truckee Tahoe region. In 1996 Kathleen helped form the Truckee River Habitat Restoration Group (TRHRG), a nonprofit organization whose mission is to promote watershed restoration in the Truckee River Basin. One of TRHRG's major local community activities is producing "Truckee River Day," where 800 volunteers gather each year to work on restoration projects. Kathleen and the TRHRG have been instrumental in developing the Truckee River Watershed Council. This affiliation of local businesses, recreationists, conservation groups, local governments, and federal, state, and local agencies have come together in an effort to better integrate their watershed interests and their assessment and restoration activities.

ABSTRACT

The Truckee River Watershed Council was founded to cooperatively protect and restore the water quality and biological resources of the Truckee River. The Council identifies, coordinates, funds, and implements restoration and preservation projects directly related to the health, beauty, and economy of the watershed. The Council's major areas of focus are reducing nonpoint source sediment and preserving and restoring aquatic and riparian habitat. Combining sound science and a deep understanding of the region's values, the Council focuses on the root causes of threats to the Truckee River watershed. The Council is made up of a broad base of businesses, citizen groups, and local, state, and federal agencies/governments. The geographic emphasis is from Lake Tahoe to the California/Nevada state line.

The Council's comments at the conference will focus on the particular work of the Truckee River Habitat Restoration Group (TRHRG). This nonprofit is a founding member and driving force in the creation of the Truckee River Watershed Council. Its mission is to promote restoration of the Truckee River watershed. The Truckee River is listed as "impaired" under the federal Clean Water Act and is listed in California as a Priority I Watershed for water quality improvements.

The TRHRG accomplishes its mission in three ways:

- *Truckee River Day restoration projects.* Truckee River Day mobilizes volunteers to implement restoration and maintenance projects within the highly visible and recreation-intensive Truckee River watershed. Through these educational "hands on" projects, Truckee River Day fosters watershed stewardship and conservation ethics while accomplishing measurable riparian rehabilitation work. The TRHRG has organized six successful River Days over the past 6 years. Each year more than 800 volunteers gather to work on up to 12 restoration projects in the watershed.
- *Education and outreach.* In addition to the educational value of Truckee River Day, the TRHRG publishes a semiannual newsletter, *Truckee River Currents*, and sponsors other educational efforts. The purpose is to raise awareness and understanding of issues affecting the watershed.
- *Coordinated watershed resource management and planning.* The TRHRG has been pivotal in the development of the Truckee River Watershed Council. The TRHRG sees the Council as the key to leveraging TRHRG's mission to promote restoration in the watershed. The TRHRG's particular strength is its ability to bring the various constituent groups to the table and stitch together partnerships that lead to cooperative watershed assessment and restoration projects.

Session A

Implementing Community-Based Watershed Management Plans

Tuesday, October 23, 2001
3:30 PM–5:00 PM

TUESDAY OCTOBER 23

3:30 PM–5:00 PM

**Session A:
Implementing Community-Based
Watershed Management Plans**

Raymond R. Jay (moderator)
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Raymond Jay is currently the chief of the Nonpoint Source Program for the California Regional Water Quality Control Board in Los Angeles. He graduated from Old Dominion University with a B.S. degree in biology and a minor in oceanography in 1987. For 7 years he worked in Virginia for the Marine Resources Commission, the State Water Resources Control Board, and the Department of Environmental Quality in fisheries and water quality. In 1995 he completed his thesis project on the preparation of human health advisory development for consumption of fish and received an M.S. degree in environmental science and policy from George Mason University in Virginia.

For the past 5 years, Raymond has worked in California for the Department of Health, the State Water Resources Control Board, and the Regional Water Quality Control Board in Los Angeles. In his current assignment as the chief of the Nonpoint Source Program, Raymond supervises a multidisciplinary professional staff of six, oversees the development and implementation of the Nonpoint Source program, administers 18 nonpoint source grants worth more than \$5 million, and implements the 401 Water Quality Certification program. The Los Angeles Region comprises a highly urbanized area expanding over an agricultural area, creating a challenging set of nonpoint source problems that provide a unique opportunity to Raymond and his team. His main interests are in innovative strategies to protect water quality and expand impaired fisheries and critical habitats.

Lassen Range Watershed Project: Deer Creek _____

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BIOSKETCH

Dianne is the past executive director of the Deer Creek Watershed Conservancy and currently serves on the Conservancy's board of directors. She received her B.S. degree from the University of Nevada, Reno, and thereafter pursued a wide variety of teaching experiences. Dianne served on the Lassen County Planning Commission before moving to Butte County in 1979. As rangeland landowners in the Deer Creek watershed, the Gaumer family became involved with the Deer Creek Watershed Conservancy at the time of its inception in 1994. Since then, Dianne has coauthored the Deer Creek Watershed Management Plan and authored the Deer Creek Watershed Management Strategy. She has directed projects for the Conservancy that have resulted in the following documents: The Deer Creek Watershed Management Plan, Pre-Fire & Fire Plan, Rangeland Water Quality Management Program, Deer Creek Canyon Contingency Spill Plan and Assessment, and Deer Creek Erosion and Sediment Control Project.

ABSTRACT

Deer Creek is an eastside tributary to the Sacramento River and home to one of the last remaining native spring-run Chinook salmon populations in California's Central Valley. The river originates close to Mt. Lassen at the southern end of the Cascade Range, and the overall basin size is 229 square miles.

Fearing government regulations and infringement on private property rights from a 1994 movement to list Deer Creek as a Wild and Scenic River, the watershed landowners formed the Deer Creek Watershed Conservancy. The Conservancy promised to the Resources Agency that it would come together in a broad-based stakeholder planning process inclusive of all those interested in resource planning for the Deer Creek watershed. Through this effort, the Conservancy has developed a close bond with the Regional Water Quality Control Board and other governmental agencies. Together, the Conservancy and the RWQCB have completed a watershed management plan for Deer Creek and have implemented projects addressing water quality issues.

Through the years of planning and implementing projects, the Conservancy has clearly demonstrated that local community ownership of watershed planning and protection produces both enormous commitment and a spirit of cooperation that is nonexistent from landowners under the regulatory process. More can be accomplished in less time when landowners are free to be good stewards. The Conservancy is only one example of the many committed local watershed efforts across the country.

Napa River Watershed Management

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BIOSKETCH

Leigh Sharp is a watershed coordinator/stewardship facilitator with the Napa County, California, Resource Conservation District. She received her B.S. degree in environmental science from the University of California, Riverside, and her M.S. degree in agricultural and resource economics from Oregon State University in Corvallis. She has experience in program development, coordination and analysis, educational outreach, and community building. She recently joined the Napa County Resource Conservation District, where her primary responsibilities include stewardship development, grant writing, and outreach.

ABSTRACT

Since 1994 the Napa County Resource Conservation District has been implementing *The Napa River Watershed Owner's Manual*, a framework for integrated resource management. The *Owner's Manual* is a collection of resource management recommendations that were developed jointly by federal, state, and local government agency representatives, private citizens, and local citizen interest groups. The recommendations are meant to provide a basis for voluntary community efforts to jointly address public and private concerns, while protecting and preserving the natural and community resources of the Napa Valley in an economically reasonable manner.

Over the past 7 years, in implementing the *Owner's Manual*, the District has been involved in encouraging land stewardship, promoting the use of natural processes for stream stabilization, increasing migratory and resident fish habitat, reducing soil erosion, and promoting sustainable land use concepts. The District uses community outreach, research, watershed assessment, restoration, and monitoring as means to encourage the Napa Valley community to implement the recommendations suggested in the *Owner's Manual*.

Long Canyon Streambank Stabilization Project

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BIOSKETCH

Peggy Rose is a grant manager and project manager with the Ventura County Resource Conservation District in Ventura County, California. She received her B.S. degree in construction engineering technology from Montana State University in Bozeman in 1983. Since that time, she has worked in various positions in Southern California. Her work experience includes several years of civil engineering with Valcon Engineering in Thousand Oaks and 4 years as field office engineer for the U.S. Department of Agriculture's Natural Resources Conservation Service in Somis. In 1995 Peggy became the grant manager and project manager for the Ventura County Resource Conservation District, also in Somis. She has been very involved in numerous grants demonstrating erosion-reducing practices throughout Ventura County and has recently taken on the task of attacking invasive nonnative plants such as *Arundo donax*.

ABSTRACT

This project is the first implementation project to spring from the 1995 Calleguas Creek Watershed Sediment and Erosion Control Plan for Mugu Lagoon. The purpose of this project was to demonstrate cost-effective and environmentally sound stream bank stabilization best management practices that could be adopted throughout the watershed to reduce erosion and sedimentation, thereby improving water quality in the tributaries and eventually the lagoon itself.

The project site chosen was an agricultural site typical of many drainages in the Calleguas Creek Watershed with a confined channel through highly erosive soils. Fifteen combinations of erosion control blankets, mattings, mulches, and vegetation were implemented in 30-foot sections on both banks. Several control sites were established to allow monitoring of the success. Installation was completed in October 1997, just prior to the onset of an El Niño winter. Numerous tours and workshops have been held to share the success of the project with a broad cross section of people in the area. The long-term success of the effort has led to local agencies, landowners, and engineering firms requesting assistance and tours of the site.

Session Innovations and Incentives in Agriculture (I)

Tuesday, October 23, 2001
3:30 PM–5:00 PM

TUESDAY OCTOBER 23

3:30 PM–5:00 PM

**Session B:
Innovations and Incentives in Agriculture (I)**

Nadim Zeywar (moderator)
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Nadim Zeywar is an environmental specialist in the California-Colorado River Basin Regional Water Quality Control Board. Nadim received his B.S. degree in soil and water sciences from King Faisal University, Saudi Arabia, and his M.S. and Ph.D. degrees in soil, water, and irrigation sciences from the University of Arizona, Tucson. His work experience includes 2 years of teaching soil, water, and irrigation management classes at the Faculty of Agriculture, Sanaa University, Yemen; 3 years as a postdoctoral researcher at the Department of Agricultural and Biosystems Engineering, University of Arizona, Tucson; and 1 year as a research assistant at the Imperial Valley University of California Cooperative Extension, Holtville. Nadim's current responsibilities include NPS coordination and TMDL development and implementation.

**Protecting the San Joaquin River through Outreach and Education to
Stanilaus County Walnut Growers: The BIOS Approach**

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BIOSKETCH

Mark Cady is the deputy program director of the Community Alliance with Family Farmers (CAFF) in Davis, California. He has a B.A. degree in biology from the University of California, Santa Cruz, and an M.S. degree in international agricultural development from the University of California, Davis. Mark has been on staff at CAFF since 1995. He has coordinated field projects that make use of the agricultural partnership extension model and is currently in charge of CAFF's agricultural programs in California's Central Valley. He previously worked for 4 years at University of California Davis, conducting applied agronomic and ecological research. Mark was a Peace Corps volunteer for 2 years in the Islamic Republic of Mauritania.

ABSTRACT

The Community Alliance with Family Farmers (CAFF) has developed an education and technical support program called Biologically Integrated Orchard Systems (BIOS), which encourages farmers to implement agricultural practices that reduce overall use of pesticides and their off-site movement. The BIOS program was started in 1993 with 30 almond growers in Merced County. It quickly expanded to six other counties in the Sacramento and San Joaquin River watersheds, where it has helped farmers managing more than 35,000 acres of almonds and walnuts to substantially reduce or eliminate their use of synthetic pesticides and fertilizers. The BIOS program has demonstrated that with intensive technical assistance, almond and walnut growers can and do significantly reduce the use of environmental contaminants. Independent research by the California

Institute of Rural Studies found that “uniformly, BIOS orchards report a significantly lower proportion of fields treated with registered pesticides” compared with a control group. Further, in comparing pre-BIOS pesticide use with use during the program, the study found that BIOS almond growers “report a steady decrease in the intensity of pesticide use ... and in their usage of all registered materials, as compared with prior years.”

CAFF has just completed the first year of a BIOS project for walnut growers in Stanislaus County, the second-largest walnut-producing county in the state, with more than 26,000 harvested acres. Participating farmers are learning how to implement ecologically sound, economically viable farming methods such as cover crop management, compost application, beneficial insect release, and habitat management. Together these techniques create a “whole system” approach to orchard management, each element of which serves multiple purposes. For example, recent research has demonstrated that cover crops significantly reduce pesticide runoff and irrigation-induced sedimentation. They also offer food and habitat to beneficial insects and add nitrogen to the soil.

Although it is too early to report results from this project, CAFF is collecting information on the orchard management practices of the 11 enrolled growers. CAFF is also collecting pest monitoring data that will help growers make management decisions that protect surface water quality while remaining economically sound.

Irrigation Strategies for Erosion Reduction in the Salton Sea Watershed

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BIOSKETCH

Khaled Bali is an irrigation/water management advisor with the University of California Cooperative Extension. He received his B.S. degree in soils and irrigation from the University of Jordan and his M.S. and Ph.D. degrees in water science and soil physics from the University of California, Davis. He is stationed at the University of California Desert Research and Extension Center in Holtville. For the past 10 years, Khaled has been conducting educational and applied research programs in irrigation and water management in the Imperial Valley. His main research interests are irrigation efficiency, water quality, surface runoff reduction, nonpoint source pollution, and modeling of contaminant transport in soil.

ABSTRACT

The Colorado River is the only source of irrigation and drinking water in the Imperial Valley. Approximately 3 million acre-feet of Colorado River water are used every year to irrigate more than 500,000 acres of lands in the Imperial Valley. Surface and subsurface drainage water from irrigated fields enters the Salton Sea, which has served as a drainage sink for the Imperial and Coachella Valleys since its formation in 1905. Approximately 15 to 20 percent of delivered water ends up as surface runoff water. This runoff water from irrigated fields contains sediments, pesticides, and nutrients that have been cited by Resource Water Quality Control Board 7 as a priority item in their Total Maximum Daily Load (TMDL) objectives. Therefore, efforts to meet the expected TMDL standards for sediment and nutrients will likely necessitate efforts to reduce sediment runoff from farm operations in the Imperial Valley.

Several methods are available to reduce the amount of sediment produced in the normal course of agricultural operations. Because of the suspended nature of much of the sediment load, the use of polyacrylamides (PAMS) provides an attractive option for reducing sediment loads to downstream receiving water bodies. Surge irrigation is also an effective method to reduce sediments in surface runoff water. This project was conducted to demonstrate the use of irrigation strategies that reduce soil erosion and minimize the losses of sediments, fertilizers, and pesticides from irrigated fields in the Imperial and Coachella Valleys. The demonstration and educational project will demonstrate the irrigation strategies that can be used to improve irrigation efficiency, reduce surface runoff, and lessen the load of silt, fertilizers, and pesticides in surface runoff water. Surge irrigation best management practices (BMPs) for Imperial Valley soils (number of cycles, flow rate, length of bed) will be determined. Properly managed surge irrigation systems can save water and reduce surface runoff. Surge irrigation systems offer the potential for semi-automation and reduction in labor and energy cost. The BMPs for polymer application in the Imperial Valley will also be determined. PAMs are effective in controlling surface erosion in soil and improving aggregate stability. PAMs mimic soil organic matter by acting as stabilizing agents in building up soil aggregates and reducing the removal of sediments from agricultural fields. The demonstration project started in 2000 with a 5-acre lettuce field at the University of California

Desert Research and Extension Center (UCDREC). Surge and standard irrigation events were demonstrated in the first year of the project. Early results from the projects demonstrated the use of surge irrigation as an effective BMP to reduce sediments in surface runoff water. A combination of PAM-surge treatments will be conducted in the 2001 and the 2002 growing seasons. The use of surge irrigation will be demonstrated on a 7-acre alfalfa field at UCDREC in November 2001. A BMP report will be developed on the effectiveness of surge irrigation and PAMs. This report will document the effectiveness of the recommended PAM and/or surge irrigation BMPs for sediment control based on the results of the demonstration projects. Economic costs related to the implementation of surge irrigation and the use of polymers to achieve TMDL goals for the Salton Sea watershed will be determined. Educational programs involving the implementation of surge irrigation and polymers in irrigated agriculture to improve runoff water quality will be conducted in the Salton Sea Watershed area. The educational activities are usually accomplished through field days and seminars and through articles published in the local agricultural newsletter and in the local newspaper.

Sonoma Creek Watershed Vineyard Management Practices

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BIOSKETCH

David Luther has served as watershed coordinator for 3 years at the Southern Sonoma County Resource Conservation District (RCD). He graduated from the University of Oregon with a B.S. degree in biology with a focus on ecology. David works with private landowners to identify and design enhancement and erosion control applications. His work with the RCD also includes performing site evaluations, identifying potential projects, designing streambed and riparian enhancement applications, solving erosion problems, maintaining and monitoring existing projects, designing and implementing bioassessment projects, writing grants, developing project budgets, and reporting to funders. He previously worked as a naturalist guide in the Amazon rainforests of Ecuador and throughout Australia. David is a lifelong avid bird watcher, and he has worked as a research assistant for the Association of Bay Area Governments identifying and monitoring shorebirds and shorebird behavior in relation to human trail user impacts.

ABSTRACT

In Sonoma County, the number of vineyards is increasing at a rapid pace. The Sonoma Creek watershed is a popular area for vineyard development both on hillsides and in the valley flats. This development may result in degradation of the land and water if proper management practices are not used. The Sonoma Creek watershed provides significant and important habitat for steelhead in its upper reaches and several endangered and threatened species in the lower reach and marshlands at its mouth. The Southern Sonoma County Resource Conservation District (RCD) attempts to inform vineyard owners and managers of management practices to decrease soil erosion that might affect water quality. The RCD used a 319(h) grant to fund a number of demonstration projects to test best management practices (BMPs) among the vineyards. Additionally, educational materials such as the *Vineyard Manual: A Grapegrowers Manual for Vineyard Development and Maintenance* were developed and distributed among the grape grower community.

The goal of the RCD's project was to implement selected BMPs at hillside vineyards within the Sonoma Creek watershed to demonstrate their effectiveness. The project had two educational elements: (1) outreach to the growers to inform them about the benefits of these practices and (2) education of the public concerning environmental and sustainable agricultural approaches to vineyard production through field days or public tours of demonstration sites. Local students helped complete some of the projects.

Session **A** Innovations and Incentives in Agriculture (II)

Wednesday, October 24, 2001
8:30 AM–10:00 AM

WEDNESDAY OCTOBER 24

8:30 AM–10:00 AM

**Session A:
Innovations and Incentives in Agriculture (II)**

Joe Karkoski (moderator)
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Joe Karkoski is currently the chief of the Sacramento River Watershed TMDL Unit at the Central Valley Regional Water Quality Control Board. His group's responsibilities include development of Total Maximum Daily Loads (TMDLs) and associated implementation plans for organo-phosphorous pesticides and updating the Clean Water Act section 303(d) list. Joe has 11 years of experience in the water quality arena with both the U.S. Environmental Protection Agency and the Regional Board. His previous experience includes developing a selenium control program in the San Joaquin Valley and serving as EPA's liaison to the State and Regional Boards on TMDL issues. Joe has a B.S. degree in chemical engineering from Michigan State University.

**Implementing Economic Incentives to Improve
Water Quality in the Grasslands and Lower San Joaquin River**

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BIOSKETCH

David Cory helps manage a family farm in the Camp 13 area of the Grassland Basin drainage area. His family has operated this farm for more than 50 years. David has been actively involved in the Grassland Bypass Project. He manages the Camp 13 Drainage District and serves on the Grassland Basin Drainage Steering Committee, representing Camp 13. David received his B.S. degree in legal studies from the University of California at Berkeley and his J.D. degree from the McGeorge School of Law.

ABSTRACT

The Grassland Bypass Project is an innovative program developed in the Central San Joaquin Valley to reduce discharges of subsurface agricultural drainage to the San Joaquin River. This project sets firm load limits for selenium and establishes various sanctions for exceedances. Since the project was implemented in 1996, selenium discharges from the drainage area have been reduced by more than 50 percent. Although the discharge load limits that have been set are discrete numbers, the means to meet those numbers are left to the discretion of the local area.

One of the tools being used to reduce discharges is a tradable loads program. This program was developed through the State Water Resources Control Board and funded by the U.S. Environmental Protection Agency. Each participant in the Grassland Bypass Project is able to trade load to other participants to more efficiently meet the discharge limits. The structure of this project sets specific discharge limits for the region but allows the local participants to decide how they are met. This type of nonpoint source regulation gives the local area maximum flexibility while providing for definite water quality improvement.

Monterey Marketing Initiative

Reggie Knox

Community Alliance with Family Farmers

Program Director

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BIOSKETCH

Reggie Knox is the Program Director for the Community Alliance with Family Farmers, a nonprofit, membership organization with chapters throughout California. CAFF conducts education and advocacy to support family-scale agriculture that cares for the land, sustains local economies, and promotes social justice. He is the project manager for the Farmer's Clean Water Initiative–Pajaro Valley Pilot Project, developing a Fields to Ocean eco-label for farmers who implement conservation practices to protect water quality. He joined CAFF in 1994 to coordinate legislative efforts and outreach for the Biologically Integrated Orchard Systems program. He also coordinated CAFF's statewide Lighthouse Farm Network. Reggie studied restoration ecology in Sri Lanka and India, and he has consulted in sustainable agriculture and community development in India and Africa.

Reggie has 12 years of experience in sustainable agriculture, land use policy, and organic farm management. He worked for 9 years with the California Certified Organic Farmers, inspecting organic farms, developing certification standards, and recommendations for national organic standards.

Reggie has contributed to agriculture in Santa Cruz County as a consultant to the Farm Bureau and by serving on the boards of directors of the local Resource Conservation District and Life Lab. He is a graduate of the University of California Santa Cruz Earth Sciences and Community Studies Programs.

ABSTRACT

The need to protect the Monterey Bay watershed is a challenge embraced by coastal farmers. This challenge is compounded by increasingly fierce global competition and consolidation in retail and wholesale purchasing. With this complex problem, the question is, how do we keep one of the world's most fertile and productive zones profitable for farmers who are working hard to do the right thing?

The Farmer's Clean Water and Marketing Initiative–Pajaro Valley Pilot Project is a voluntary, incentive-based project that aims to meet the needs of farmers, regulators, and the Monterey Bay. Project founders have identified a set of farming practices that define an environmentally friendly standard. The project aims to provide a marketing advantage and better relations with regulators and environmental groups to growers who enroll in the program and adopt these practices. A Fields to Ocean branding icon and promotional activities highlight the regional identity and environmentally sensitive practices of inspected farms that score above a certain threshold. The project demonstrates that farmers can protect the region's water quality while remaining economically viable.

Phelan Island Restoration and the Biological Prune Systems Project

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BIOSKETCH

Fred Thomas is a Pest Control Advisor (PCA) who specializes in cover crops and sustainable and organic agriculture. He is the owner of CERUS Consulting in Chico, California. He received his B.S. degree in agriculture from California State University, Chico. His experience includes almond farm management, wholesale seed marketing, germplasm research and development, cover crop technology, pasture and rangeland seeds, and biological farming systems. Fred is also a 25-year member of both the Society for Range Management and the California Production Consultants Association (CAPCA) and is the current NorCal CAPCA president.

During the past 5 years Fred has participated as a cover crop advisor for the UC Sustainable Agriculture Research and Education Program (SAREP) Five Points Cotton/Tomato Biologically Integrated Farming Systems (BIFS), the four Community Alliance of Family Farmers (CAFF) BIOS almond and walnut projects, and the UC SAREP/CAFF San Joaquin Walnut BIFS. He is also the program coordinator for the Glenn County Surface Water Stewardship program and for the Biological Prune Systems (BPS) Project, which was initiated by The Nature Conservancy. The BPS Project is part of the California Dried Plum Board's Integrated Prune Farming Practices program. Fred will discuss the beginnings of the BPS Project at Phelan Island and the project's successes and challenges.

ABSTRACT

The purpose of this project was to demonstrate the restoration of older, highly flood-prone prune and walnut orchards and to use them as a model for cover cropping, eliminating Diazinon, and reducing the level of applied synthetic nitrogen. With support from the Department of Pesticide Regulations (DPR) IPM Innovator Program and the California Dried Plum Board's Integrated Prune Farming Practices program, the BPS Project accomplished some its goals and spawned wider support for the prune growers.

The Phelan Island Restoration program had two linked but separate objectives: (1) removing 12 blocks of prunes and walnuts from Phelan Island and converting the orchards to a mixed oak woodland through restoration and (2) conducting outreach for the recent DPR-funded BPS Project. The removal and restoration were managed by California State University, Chico, and there were numerous field trips for students, CSU Chico watershed managers, the U.S. Fish and Wildlife Service, and local farmers. The restoration was very successful and included well-publicized plantings by local elementary school children.

The BPS Project followed a BIOS model of a management team that visited project growers and helped them eliminate dormant sprays on one of their orchards. The 12 project growers placed a total of 180 acres into the project. Ten of the blocks were within a quarter mile of a river. All of the growers were able to eliminate the dormant spray Diazinon by the second year and switch to monitoring, *Bacillus thuringiensis*, or oil to keep their blocks unsprayed through 2001. Despite strong support from the California Dried Plum Board and expansion to 33 growers statewide, the project has been unable to eliminate the secondary pests, leaf curl plum aphid and mealy plum aphid; more than 30 percent of the growers still report a problem. As the University of California has often stated, "Worm pests are controllable, but it is the challenge of controlling the aphids softly and effectively that is preventing the reduction of dormant sprays in prunes."

Session

Tracking Implementation and Evaluating Success

Wednesday, October 24, 2001
8:30 AM–10:00 AM

WEDNESDAY OCTOBER 24

8:30 AM–10:00 AM

**Session B:
Tracking Implementation and Evaluating Success**

Stefan Lorenzato (moderator)
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Stefan Lorenzato is the California TMDL Coordinator for the State Water Resources Control. His current work focuses on completing TMDLs using Watershed Management Approaches and working with interest-based stewardship groups. Stefan works closely with Regional Water Quality Control Board staff on specific TMDLs. As a lead staff person, Stefan is involved in all aspects of TMDL development. Stefan's TMDL work includes policy, technical, administrative, and legal issues. He speaks frequently to various interest groups and parties affected by TMDLs. He has worked at the Water Board for 13 years and has been involved in developing the Board's approach to watershed management. He has worked in the Nonpoint Source Program, the Bay Protection and Toxic Cleanup Program, the Ocean Standards Unit, and the Basin Planning Unit.

Stefan has a master's degree from the University of California, Davis in plant production and pest management and a B.S. degree from the University of California, Berkeley, in conservation of natural resources, with an emphasis on regional planning.

Nonpoint Source Pollution Treatment Measure Evaluation for the Morro Bay Watershed_____

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BIOSKETCH

Brian Dietterick is an associate professor of hydrology and watershed management in the Natural Resources Management Department of California Polytechnic State University, San Luis Obispo. He has an M.S. degree in watershed management from the University of Arizona and a Ph.D. degree in forest hydrology from the Pennsylvania State University. He has a Professional Hydrologist certification through the American Institute of Hydrology. Brian is experienced in water quality monitoring, channel restoration, and landscape and hydrologic modeling.

ABSTRACT

Using a paired watershed study approach, event-based water quality samples have been collected and analyzed for 7 years on two small rangeland watersheds in the Morro Bay watershed. The study objective is to determine the effectiveness of a series of watershed best management practices that include rotational grazing, alternative watering sources, riparian fencing, road improvements, riparian planting, and channel improvements. A calibration period began in 1994 and ended in the spring of 1995, during which time the primary land use in the Chumash and Walters watersheds was grazing. Statistical relationships

between the control and treatment watersheds were determined for various monitoring parameters, including total suspended sediment, turbidity, electrical conductivity, and flow. Following the calibration period, BMPs were implemented on the treatment watershed (Chumash Creek), and monitoring continued on both through the end of the 1999-2000 rainy season. Graphical comparisons of turbidity and suspended sediment and flow show that BMP implementation has resulted in a decrease in these parameters in the treatment watershed, compared to the control. Regression analyses confirmed the observation, though with very low r -squared values, and also showed that turbidity and sediment decreased slightly, but significantly, as time since BMP implementation increased. Findings thus far support the hypothesis that BMPs have been effective in reducing suspended sediment export. Monitoring and analyses will continue through 2002.

Feather River/Meadow Restoration

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BIOSKETCH

Jim Wilcox has 11 years of direct experience in all phases of watershed analysis and geomorphic restoration. He is currently a watershed restoration specialist with the Plumas Corporation, where he serves as geomorphic restoration project manager on the Feather River Coordinated Resource Management group. He is responsible for design, specifications, and construction supervision, including the implementation and effectiveness monitoring of 30 restoration projects in the Feather River watershed encompassing more than 15 miles of stream channel and associated riparian areas in a wide variety of channel types and settings. Jim has been a guest lecturer at several Rosgen short courses and is a co-instructor of the Geomorphic Restoration and Watershed Assessment course through San Francisco State University. He has given presentations at numerous fisheries, ecological, and engineering society conferences.

ABSTRACT

The Feather River Coordinated Resources Management (FR-CRM) group initiated a long-term program of watershed restoration in 1990 that was based on the fundamentals of geomorphic processes. Through the course of this ongoing program, now spanning more than 30 projects, the FR-CRM has applied these principles and a variety of techniques in a diverse array of landscape settings and channel types. Through project effectiveness and specific process response monitoring with a quick adaptive feedback process, the FR-CRM has been able to determine the constraints and opportunities of the various geomorphic restoration techniques based on landscape conditions.

The purpose of this presentation is to touch on the FR-CRM experience with entrenched alluvial channels. Channel entrenchment leads to a disconnection from the naturally evolved floodplain. Experience in the Feather River has shown that the small percentage of channels still fully connected to the historic floodplain exhibit virtually no significant problems despite record floods in 1986, 1995, and 1997. Conversely, channels with partial or complete floodplain disconnection exhibit ongoing and severe nonpoint source-related water quality, aquatic habitat, and sedimentation problems. Entrenchment can result from a variety of impacts, both natural and human-initiated. These activities include channelization, gravel mining, road/railroad building, grazing, levees, and other infrastructure encroachments.

The presentation will focus on constraints and opportunities associated with applying geomorphic restoration to these challenging fluvial landscapes. A specially developed slide show and overheads will depict the relationships, benefits, and limitations of stabilizing entrenched channels or restoring their full floodplain function. The presentation will focus on four to six projects funded by Clean Water Act section 319(h), Proposition 204, and other grants.

The Natural Resource Projects Inventory

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BIOSKETCH

Kevin Ward is the coordinator for the Natural Resource Projects Inventory at the Information Center for the Environment (ICE) at the University of California, Davis. She received her B.S. degree in environmental policy and planning from the University of California at Davis, after working for 10 years in marketing communications in Silicon Valley. For the past several years, she has managed the Natural Resource Projects Inventory. She participates in both the California Biodiversity Council's and CALFED's Watershed Workgroups. Most recently Kevin joined the board of directors of the California Watershed Network.

ABSTRACT

The Natural Resource Projects Inventory (NRPI) database is being used to track the initiation, implementation, and effectiveness of the management measures and practices for California's Nonpoint Source Pollution Control Program (Program Plan). The Information Center for the Environment (ICE) at the University of California, Davis, and the State Water Resources Control Board are involved in this ongoing effort.

The NRPI database was retrofitted to include controlled language lists from the Program Plan, which includes six management categories and their 61 associated management measures, tier identification (from the plan's three-tiered approach), and authorities (federal and state law), programs, and permits. Natural resource restoration projects in California with water quality issues resulting from polluted runoff were identified in the database, and nearly 300 projects were tagged accordingly. Additionally, two Regional Water Quality Control Boards were chosen to participate in photo documentation of implemented best management practices. Those 50 pictures will be uploaded to the database for on-line viewing.

Beginning in October 2001, the NRPI data entry form will be available on-line and will include the newly retrofitted Program Plan section.

Session A

Wetland/Riparian Restoration and Ecosystem Management

Wednesday, October 24, 2001
10:30 AM–12:00 PM

WEDNESDAY OCTOBER 24

10:30 AM–12:00 AM

**Session A:
Wetland/Riparian Restoration and Ecosystem Management**

Ann Riley (moderator)
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Ann Riley is the watershed and river restoration Advisor for the San Francisco Bay Regional Water Quality Control Board. She has 17 years of government experience working in land use planning, water conservation, integrated pest management, and river and floodplain management. Ann obtained her Ph.D. degree in floodplain management and river restoration from the University of California, Berkeley, and is the author of *Restoring Streams in Cities* (Island Press, 1998). She has been involved with several nonprofit organizations. She founded and directed the Waterways Restoration Institute, cofounded the Coalition to Restore Urban Waters and the Urban Creeks Council of California, and worked as executive director of the California Natural Resources Foundation and Golden State Wildlife Federation. She serves on numerous national research and advisory teams and task forces, including the National Academy of Sciences, National Research Council, and Institute for Water Resources, and she has drafted legislation for Congress and state legislative efforts.

Arundo Removal/Habitat Restoration in San Timoteo Canyon _____

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BIOSKETCH

Jennifer Ares has recently been appointed the interim district manager for East Valley Resource Conservation District. She has been with the district since August 1996 and formerly was the District's GIS/Education Coordinator. She has a B.A. degree in environmental studies from California State University in San Bernardino. She serves on several committees, such as the Santa Ana Watershed Association and the California Envirothon.

ABSTRACT

The Santa Ana Watershed Association (SAWA) of Resource Conservation Districts (RCDs) was formed in 1996 and is composed of five RCDs whose district boundaries are located within the Santa Ana watershed. The goal of this organization is to restore whole watershed health. Operating funds are from the Santa Ana River Trust Fund, a mitigation bank that primarily originated from the \$3 million the U.S. Army Corps of Engineers paid as mitigation for habitat loss resulting from the Seven

Oaks Dam Project. These funds were designated for 53 acres of invasive removal/habitat restoration within San Timoteo Canyon. SAWA expanded those original 53 acres to 209 actual acres of invasive removal and treatment within San Timoteo Canyon. In addition to the removal of invasives, the monitoring and herbicide treatment are ongoing to ensure complete eradication. Monitoring of endangered species is also an important part of this program.

Sediment Capture on the Chorro Flats Enhancement Project

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BIOSKETCH

Malcolm McEwen is a watershed coordinator with the Coastal San Luis Resource Conservation District. He holds a B.A. degree in applied mathematics from the University of California at Berkeley and an M.S. degree in environmental engineering from the University of California, Davis. He worked with Larry Walker Associates in the Sacramento area during the early 1990s focusing on water quality data collection and analysis. He later worked for the Land Conservancy of San Luis Obispo County designing and implementing water quality monitoring programs. Since 1998 Malcolm has been responsible for maintenance and monitoring of the Chorro Flats Enhancement Project, a sediment capture, agricultural preservation, habitat restoration, and education project of the Coastal San Luis Resource Conservation District.

ABSTRACT

The Chorro Flats Enhancement Project is a 129-acre sediment capture, agricultural preservation, habitat restoration, and education project funded by the State Coastal Conservancy, the State Water Resources Control Board, and CalTrans. The goals of the project are to reduce sediment loading to Morro Bay and to restore riparian and in-stream habitat by reconnecting Chorro Creek with its historical floodplain. Construction of the project involved removing an existing levee, constructing a new berm far away from the channel, and excavating a shallow swale to encourage some channel overflow and provide a secondary channel location for the inevitable channel avulsion.

A sediment-loading model developed for the Morro Bay National Estuary Program is used to estimate sediment loading to the site. Topographic surveys and sediment samples are used to estimate the volume, mass, and particle size distribution of the collected sediment. Cross-sectional and longitudinal profiles are used to assess the stability of the channel and to estimate the flow rates that will cause flooding of the site.

Preliminary results indicate that 23 percent of the total sediment load in Chorro Creek was captured on Chorro Flats between 1992 and 1998. During that same period, as much as 85 percent of the bed load was deposited on the flats. First-year erosion lowered the thalweg of the overflow channel. Most of the flow now passes through the overflow channel, with the old creek channel acting as an overflow channel. The upstream portions of the site are expected to flood less frequently than designed because of downcutting in that portion of the site.

Wildcat Creek Restoration

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BIOSKETCH

Laurel Collins received her B.A. degree in earth sciences at the University of California at Berkeley in 1981. She has 23 years of professional experience as a geomorphologist for local, state, and federal agencies and has consulted during the past 15 years. Her areas of research have focused on fluvial geomorphic processes of watersheds and tidal marshes. Her recent research as principal for watershed sciences and as a former employee of the San Francisco Estuary Institute has included the study of landscape response to natural processes and anthropogenic land use impacts.

ABSTRACT

A number of small restoration projects have been conducted on Wildcat Creek, located in the Northern California Berkeley Hills. This presentation will discuss two aspects of restoration relevant to this creek. First it will focus on the history of small restoration projects conducted in Alvarado Park, which is located at entrance of Wildcat Canyon. The objectives of restoration in this area have been to remove steelhead migrational barriers to provide access to the rest of the watershed, and to stabilize eroding banks and maintain historical rock walls. Second, it will discuss conceptual strategies for restoration that could involve the entire watershed. The objective of these strategies is to reduce downstream peak floods and sediment supply.

The methods used to monitor Wildcat Creek projects in Alvarado Park have included repeated longitudinal surveys of stream profile, stream mapping, assessment of bank conditions, and photographic documentation. This presentation will demonstrate the changes in the project site and evaluate the achievement of project objectives.

The methods used to develop conceptual watershed-scale restoration strategies are based on a watershed-wide analysis that was conducted for the Contra Costa Clean Water Program during the past few years. The methods included are the same techniques as those used for Alvarado Park, plus bathymetric surveys of reservoirs, assessment of historical conditions and land use impacts, quantitative analysis of sediment sources, and changes in drainage density. The results of this project will be used to demonstrate potential restoration strategies that could be considered for other watersheds.

Session

Getting the Word Out: Outreach in Action

Wednesday, October 24, 2001
10:30 AM–12:00 PM

WEDNESDAY OCTOBER 24

10:30 AM–12:00 PM

**Session B:
Getting the Word Out: Outreach in Action**

Stephanie M. Gasca (moderator)

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Stephanie Gasca is an environmental specialist in the Coastal Waters Planning Section at the Santa Ana Water Quality Control Board. She received her B.A. degree in biological sciences from the University of Southern California. Her intern experience at Heal the Bay, under the direction of the staff scientist, Mitzy Taggart, allowed Stephanie to participate in the Beach Plume Dispersion Study and the citizen monitoring aspect of the Marina del Rey dredging project. Stephanie is currently completing her M.A. degree in environmental science at the University of Southern California. She has been at the Regional Board for the past year and a half. Her current responsibilities include addressing issues pertaining to Crystal Cove, Bolsa Chica, Huntington Harbour, and Anaheim Bay. Stephanie also oversees the *Caulerpa taxifolia* outreach program and assists with NPS-related issues along the coast.

Adopt-A-Watershed

Kim Stokely

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BIOSKETCH

Kim Stokely is founder and currently education director of Adopt-A-Watershed. She coauthored the Adopt-A-Watershed curriculum. She has extensive experience in developing and implementing successful science- and environment-based education programs and professional development workshops. She formerly served as the education director at the Yosemite Institute and science coordinator and teacher for the Mountain Valley Unified School District. She has a B.A. degree from the University of California, Santa Cruz, and a Life Science and Multiple-Subject Teaching Credential from California State University, Chico.

ABSTRACT

Adopt-A-Watershed has the expertise and tools to help local watershed projects implement high-quality, sustainable, community-based watershed education programs. Watershed conservation can be successfully accomplished only when the citizens of that watershed understand how their personal and community well-being are interdependent with their watershed's health. High-quality watershed education programs are needed to help communities understand this connection and follow through with restoring watersheds and building sustainable systems. Adopt-A-Watershed helps local watershed projects, K-12 teachers,

and resource agencies implement a watershed education strategy that uses the local watershed—from schoolyards and urban creeks to forest floors and salmon-filled rivers—as a context for learning. Students and volunteers lead watershed monitoring, restoration efforts, and community education projects in a continuum of learning across the grade levels, making education relevant to their lives. In its recent study *Closing the Achievement Gap*, the State Education and Environment Roundtable confirmed that schools using this environment-based approach produce students with better performance on standardized measures of academic achievement, increased engagement and enthusiasm for learning, and greater pride and ownership of accomplishments. Not only do students find school more interesting and meaningful, but they also learn to care about the place where they live.

Only a small percentage of K-12 teachers teach in-depth about the environment, although 98 percent of the public believes it is important to learn about the environment. We want to teach about watersheds in schools, but if we don't work with teachers and their day-to-day priorities, we will not be able to “get in the door.” Adopt-A-Watershed has the expertise to help watershed projects learn how to get in the door. Participants will be introduced to the services and opportunities that Adopt-A-Watershed can provide.

Managing Agricultural Nonpoint Sources for Water Quality

Renee Latu

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BIOSKETCH

Renee Latu is a natural resource coordinator with the Inland Empire West Resource Conservation District. She received an A.S. degree in environmental technology at Chaffey College and is working on her B.S. degree at California State University Bakersfield, in environmental resource management. She has been with the District for almost 2 years.

ABSTRACT

The purpose of this project was to conduct a 3-year NPS program, using public information materials and workshops to inform and educate the agricultural community about NPS pollution. Another task included in the contract was to produce NPS public information materials for statewide distribution and to develop a hands-on instructional outreach program. This was a cooperative effort among members of the dairy industry. Some sponsors were California Milk Producers, USDA Soil Conservation Service (now the Natural Resources Conservation Service, Riverside County Farm Bureau, Cal Poly Pomona, State Dairy Association, and San Bernardino County Agricultural Commissioner.

Urban Runoff Education

Kimberly Lyman

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BIOSKETCH

Kimberly Lyman manages public education and information programs designed to reach the 10 million residents of Los Angeles County with important messages about protecting our environment including stormwater pollution prevention, source reduction, and proper disposal of used oil. She previously coordinated public outreach activities for the County's elementary and secondary school environmental education programs.

ABSTRACT

This project was a telephone survey to determine several key factors about the do-it-yourself population in order to target them more effectively with public education and outreach efforts. The poll was developed to help identify the demographic and attitudinal profiles of Los Angeles County residents who change their own motor oil, paint their homes, or use pesticides and fertilizers in their gardens.

Survey questions were also developed to determine which types of media—print, radio, network TV or cable TV—were used most often by the do-it-yourself audience and which actual channels, stations, or periodicals were most popular. Other factors—including time of day and whether the resident was at home, at work, or in the car during media exposure—also were examined. Results of the survey were then cross-tabulated to form profiles based on gender, income, education, do-it-yourself tendencies, and media consumption habits, with the hope of being able to pinpoint the most cost-effective forms of advertising to reach the target audience.

Session **A**

NPS TMDL Implementation

Wednesday, October 24, 2001
1:30 PM–3:00 PM

WEDNESDAY OCTOBER 24

1:30 PM-3:00 PM

**Session A:
NPS TMDL Implementation**

Thomas Mumley (moderator)
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Tom Mumley is a senior water resource control engineer and the Total Maximum Daily Load (TMDL) coordinator at the California Regional Water Quality Control Board, San Francisco Bay Region. He is also the statewide TMDL program manager. Tom has a B.S. degree in chemical engineering from the University of Massachusetts, Amherst, and a Ph.D. degree in chemical engineering from the University of California, Berkeley. He has worked at the San Francisco Bay Regional Board for 17 years. From 1986 through 1999, he managed the development and implementation of the nonpoint source control program for the San Francisco Bay Region. From 1995 through 1999, he also coordinated implementation of the Watershed Management Initiative in the San Francisco Bay Region.

The Fiber Mat Best Management Practice Demonstration Project

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BIOSKETCH

David Bradshaw is the supervisor of irrigation management for the Imperial Irrigation District (IID). He is a graduate of California Polytechnic, San Luis Obispo, with a degree in agricultural engineering technology. Upon graduation David worked 5 years with UMA Engineering as a consultant to the IID. For the past 7 years he has worked for IID in the water department on water conservation and salinity mitigation projects. David is the contract administrator for a 3-year State Water Resources Control Board cost-share program that aims to improve water quality in IID drains in an effort to reduce Total Maximum Daily Loads (TMDLs) in the New and Alamo Rivers.

ABSTRACT

The Imperial Valley drains and the New and Alamo Rivers are designated as silt-impaired on California's section 303(d) list. Agricultural practices in the watershed are a source of silt loading to these impaired water bodies.

To date, several BMPs have been identified for the reduction of silt loading, yet there has been almost no testing of these practices.

The Fiber Mat Best Management Practice Demonstration Project is the implementation of farm management techniques that will result in measurable water quality improvement. Each of these BMPs uses biodegradable fiber mats to reduce sediment

loading. The participating growers, in consultation with the Resource Conservation District and the local company Greenfix America (which manufactures the fiber mat material), will implement the following five on-farm, sediment-reduction BMPs over the life of the projects:

1. Speed Bumps
2. Check Slots
3. Channel Lining
4. Row Crop Siphon Liner
5. Tailwater Drainbox Inlet Liner

The participating growers will be asked to volunteer to have some or all of these management measures applied on their land. The selection of suitable growers will depend on site conditions.

The BMPs will be implemented on fields in the Imperial Valley with participating growers. These fields will first be documented and then monitored through several growing seasons and compared to a baseline control plot. The growing seasons will vary depending on the crop, weather, crop variety, and transplant size. More than 100 different crops are annually grown in the Imperial Valley, and each crop can have between 100 and 200 active variety types.

The amount of sediment reduction will be measured and then compared to the other types of BMPs. This comparison of BMPs will look at the amount of silt reduction achieved when the five BMPs are implemented.

San Diego Watershed Agricultural Nutrient Management Plan

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BIOSKETCH

Darren Haver is currently the water quality program representative for the University of California Cooperative Extension in Orange County. He received his B.S. degree in ornamental horticulture from the California State Polytechnic University, Pomona, and his Ph.D. degree in botany and plant sciences from the University of California, Riverside. For the past 2 years he has been assisting row crop and container nursery producers in the San Diego/Newport Bay watershed with the execution of an Agricultural Nutrient Management Program. This program includes a nutrient management plan, outreach activities, and the initiation of a water-quality monitoring project to assess the effectiveness of best management practice implementation.

ABSTRACT

The Agricultural Nutrient Management Plan (ANMP) was developed for agricultural producers in the San Diego Creek/Newport Bay watershed to provide general guidelines for management practices that eliminate or minimize impacts on surface runoff.

The Orange County Farm Bureau invited the University of California Cooperative Extension (UCCE) in Orange County to submit a proposal to develop guidelines on behalf of agricultural producers in Orange County. The guidelines, culled and assembled from university-based research publications and various other sources, describe management practices that have been shown to be effective in reducing nutrient-laden runoff from agricultural activities. In addition to encouraging the adoption of the ANMP by both agricultural producers and the Santa Ana Regional Water Quality Control Board, UCCE expanded its program to include a series of educational outreach workshops and forums addressing topics ranging from nutrition, irrigation, and frost to general water quality policy.

Demonstration Projects: Reducing Nonpoint Source Mercury Loads

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BIOSKETCH

David Drury is a senior civil engineer in the Countywide Watershed Programs Unit of the Santa Clara Valley Water District in San Jose, California. He received his B.S. degree in microbiology and his M.S. degree in chemical engineering from Colorado State University. He worked on soil and groundwater contamination and remediation projects for 2 years as a consultant and for 4 years at the Santa Clara Valley Water District. For 5 years he assisted the District's efforts in compliance with a joint municipal NPDES stormwater permit, designing and implementing special studies to identify and reduce pollutant loading in storm water, and to evaluate treatment methods. For the past 2 years he has been working as the chair of a work group to develop a Total Maximum Daily Load for mercury in the Guadalupe River watershed. The work group is part of a larger stakeholder forum (the Santa Clara Basin Watershed Management Initiative) made up of public agencies, regulatory agencies, industry, and environmental interests, whose purpose is to collectively prioritize and address environmental issues related to the protection of beneficial uses of water resources.

ABSTRACT

Historic mining activities from the largest mercury-producing mining area in North America resulted in the distribution of mercury-contaminated sediments throughout a large portion of the Guadalupe River watershed. Sedimentation processes in creek systems continue to mobilize mercury spatially, temporally, and within the food web. The feasibility of stream bank stabilization and streambed sediment removal techniques will be evaluated as potential nonpoint source mercury load reduction methods. The use of demonstration projects will provide a realistic perspective of the economic burden and the net environmental benefits of these methods, while achieving actual load reductions. The information derived from the work will be useful in allocating loads and in preparing the implementation plan.

Session B

Managing Runoff from Animal Sources

Wednesday, October 24, 2001
1:30 PM–3:00 PM

WEDNESDAY OCTOBER 24

1:30 PM–3:00 PM

**Session B:
Managing Runoff from Animal Sources**

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Jack Hodges is an agricultural engineer with the State Water Resources Control Board, Nonpoint Source Program. Jack received his B.S. degree in agriculture engineering from Cal Poly, San Luis Obispo, and is registered in California as a Professional Engineer. He worked for the State Department of Water Resources for 13 years, involved in water resources development and water quality investigation and studies. He then spent 24 years with the State and Regional Water Boards working on water quality planning and regulatory programs. As a retired annuitant, he has been coordinator of the State and Regional Water Boards' confined animal program for the past 3 years.

Sonoma County Dairy Project of Stemple Creek

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BIOSKETCH

Paul Sheffer is an engineering technician with the Southern Sonoma County Resource Conservation District (SSCRD). He graduated from Miami University in Oxford, Ohio, with a degree in psychology; he also completed a year of graduate studies in cultural anthropology at the University of Arizona.

Paul provides engineering and technical assistance, especially agricultural assistance, to landowners. He has more than 30 years of experience working with the Natural Resources Conservation Service and more than 5 years with SSCRC. Paul has been instrumental in the development of animal waste systems since 1974, when they were first mandated. He has done extensive erosion control work in both Sonoma County and Marin County. Paul has participated in hillside vineyard development and erosion control practices associated with the vineyard development. In addition to providing engineering services to SSCRC, Paul is an accomplished poet, photographer, and award-winning jam maker.

ABSTRACT

The purpose of this project is to continue the goals and priorities laid out in the *Stemple Creek/Estero de San Antonio Watershed Enhancement Plan* developed by the Stemple Creek Technical Advisory Committee and other stakeholders. In developing a watershed enhancement plan, Technical Advisory Committee members emphasized a dedication to watershed enhancement while maintaining a vigorous agriculture economy. The ongoing goal of the Southern Sonoma County Resource Conservation District (RCD) is to continue the momentum created by these active landowners.

After developing the *Enhancement Plan*, the Technical Advisory Committee created a list of priority projects. The RCD worked to completed two of the remaining projects: (1) a gully stabilization and drainage diversion project and (2) development of a plan addressing sedimentation and flooding in an upper reach of Stemple Creek. Fencing projects also were completed on selected sites throughout the watershed. Interested landowners volunteered to manage livestock access to Stemple Creek and tributaries, and local students completed planting projects to enhance the riparian corridor areas. The RCD provided outreach to local landowners in the form of site visits, newsletters, and landowner meetings. As requested by the Technical Advisory Committee, the RCD continues work with the USDA Natural Resources Conservation Service (NRCS) to complete a report and application for Public Law 566 funding through USDA that could potentially bring \$5 million for water quality enhancement. In October the RCD will partner with the NRCS, UC Cooperative Extension, and Gold Ridge RCD to provide a Ranch Planning Course for watershed residents.

The Stemple Creek watershed begins just west of Petaluma and empties into the Pacific Ocean through the Estero de San Antonio. The California Coastal Commission has identified the Estero as one of the 17 most important wetlands in California, and it is part of the Gulf of the Farallones National Marine Sanctuary. The 50-square-mile watershed is cut in half by the Sonoma-Marín County line, and almost all of the watershed is in agricultural production, primarily dairy and livestock ranches.

Resource Management at Equine Facilities in the Bay Area

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BIOSKETCH

Lisa Shanks is a resource conservationist with the USDA Natural Resources Conservation Service, working in the San Francisco Bay–Delta area. She received her B.S. degree in natural resource planning and interpretation from Humboldt State University. For 19 years, she has been a soil conservationist, district conservationist, and currently resource conservationist for the Natural Resources Conservation Service based in Sonoma County. Her work with grape growers focused on changing management strategies for hillside vineyards, where planting and managing cover crops for erosion control are now an accepted part of grape growing. Recently, Lisa has branched out from dairy waste management to horse manure management. Lisa edited the manual *Horse Keeping: A Guide to Land Management for Clean Water*.

ABSTRACT

The purpose of this project was to demonstrate effective, affordable methods to reduce water quality impacts from horse facilities by working with horse owners and providing them with technical information, on-site assistance, and educational materials. This was a cooperative effort among five Resource Conservation Districts (RCDs)—Alameda, Contra Costa, Marin, Sonoma, and San Mateo—under the umbrella of the Council of Bay Area RCDs.

Each of the five RCDs involved chose a specific equestrian facility as a pilot, developed a site management plan and site design, and implemented specific best management practices, including on-site composting, grassed waterways, filter strips, diversion ditches, riparian buffers, sediment ponds, erosion control, cross-fencing, and roof runoff management measures. Sites were used for workshops and tours. The RCDs also developed 10 fact sheets, presentations, and information packets. Technology transfer included a major outreach effort to horse owners and riders, public informational displays at fairs and meetings, and a series of conservation planning workshops for equestrian facility owners. The RCDs also provided on-site technical assistance to facilities throughout the Bay Area, as well as to county planners and other agencies. They also prepared a horse keeping guide, which will be ready for distribution soon.

Dairy Watershed Treatment Wetlands Demonstration Project

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Katherine O'Connor works as principal regulatory investigator for the Health and Regulatory Department at the Orange County Water District (OCWD).

Katherine attended the University of California, Santa Barbara, and received a B.A. degree in environmental studies and planning. She received her M.A. degree in urban and regional planning from California Polytechnic State University, Pomona, and is a member of the American Institute of Certified Planners (AICP). Katherine has worked at OCWD for 6 years, following 5 years at the Orange County Sanitation District, where she focused on water conservation and reclamation issues. As principal regulatory investigator, she examines water quality impacts on the river and groundwater basin from upstream discharges, with particular emphasis on the issue of salts and nitrates from upstream dairies. Additional work includes coordination of multidisciplinary research projects investigating impacts on recharge water quality conducted by a variety of research institutions, government agencies, and universities. She also works closely with local, state, and federal agencies to control nonpoint source pollution and develop programs for source control and watershed management.

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BIOSKETCH

Stephen Lyon works in the Engineering Department of the Orange County Water District (OCWD) and is director of OCWD's Santa Ana River Field Research Laboratory in Anaheim.

He completed his undergraduate studies in oceanography and limnology in 1979 at Humboldt State University in California and Uppsala University in Sweden. Throughout most of the 1980s, Stephen was the senior staff scientist with the San Diego Region Water Reclamation Agency in Santee, California. There he worked on a variety of water reclamation projects, including a long-term study using gravel-based constructed wetlands for advanced wastewater treatment. In 1990 he received his M.S. degree in biology from San Diego State University with an emphasis in aquatic ecology and molecular biology. He spent much of the 1990s conducting research on microbial communities in chemically stressed soils. Stephen received his Ph.D. degree from the Department of Environmental Analysis and Design at the University of California Irvine in 2000. He has worked at the Orange County Water District since 1998.

ABSTRACT

The Santa Ana River watershed has the highest density of dairy cows in the nation, with more than 336,000 animals and 270 dairies and operating on 25,000 acres in the Chino Basin. Between 50 and 100 gallons of water are used to wash cows before milking, generating millions of gallons of contaminated washwater per day. Current management practices for washwater involve storage in evaporation ponds, percolation to groundwater, or spraying onto disposal lands. In the Chino Basin, groundwater nitrate-nitrogen levels and total dissolved solids exceed state and federal water quality objectives. Salts and nitrates from manure stockpiles and runoff of washwater from lagoons degrade the quality of the Santa Ana River, which recharges the Orange County groundwater basin. The Orange County Water District (OCWD) manages the flows of both the Santa Ana River and the groundwater basin it recharges, which supplies more than 2 million residents with 75 percent of their water. Large-scale dairies upstream pose a threat to Orange County's primary drinking water supply. In addition, increased salts in the water supply shift costs to the public sector because the costs are transferred to the water purveyors and consumers.

OCWD is proceeding with a comprehensive approach to reduce the impact of dairy wastes on the Orange County groundwater basin. OCWD works with regulators to monitor and enforce dairy waste management regulations to ensure compliance with state and federal laws. OCWD is also engaged in a new partnership with the dairy industry for educational outreach

and nonpoint source pollution prevention efforts. OCWD received a Clean Water Act grant for a dairy washwater treatment demonstration project in the Chino Basin. The project implements constructed wetlands to treat dairy washwater for a product water suitable for on-site reuse and reduces the amount of contaminants entering groundwater supplies. The wetlands use a horizontal-subsurface flow system whereby washwater treatment occurs beneath the surface of the gravel, which is planted with finely rooted grasses and bulrushes. Bacterial biofilms on the gravel support the microbial degradation of nutrients in the washwater. The deep-rooted vegetation transports oxygen to the anaerobic zone, allowing for the nitrification of the ammonium and subsequent denitrification of the nitrate in the washwater. The project design includes two wetlands operating in parallel (side-loading and front-loading), in addition to a facultative pond for the central collection of washwater prior to treatment. Anticipated water quality and air quality enhancements include reductions in biological oxygen demand, nitrate-nitrogen, phosphorus, and ammonia emissions and inactivation of protozoan parasites and pathogens present in dairy washwater.

Wetlands treatment to recycle dairy washwater maximizes the utility of existing storage ponds by containing and treating washwater. Industry outreach and technology transfer programs will be available to dairy operators interested in implementing the practice. OCWD, in cooperation with the dairy industry, proposes to continue operation of the dairy washwater treatment wetlands demonstration project to fully evaluate its treatment effectiveness and to encourage technology transfer to additional dairies throughout the watershed and the state.

**What Have We Learned:
How Can We Improve Projects and Funding?**

Wednesday, October 24, 2001
3:30 PM–5:00 PM

WEDNESDAY OCTOBER 24

3:30 PM–5:00 PM

What Have We Learned: How Can We Improve Projects and Funding?

Martha Davis (moderator)

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Martha Davis is the manager of strategic policy development and oversees the Water Resources Department at the Inland Empire Utilities Agency (IEUA), a municipal water district serving 700,000 people in the western portion of San Bernardino County. IEUA provides regional sewage treatment services, distributes imported water and recycled water supplies, and provides other utility services for the Chino Basin.

Previously, Martha served as the executive director for Californians and the Land (1998–2000) and for the Mono Lake Committee (1984–1996). Under her leadership, the Mono Lake campaign culminated in a unanimous landmark public trust decision by the State Water Resources Control Board to protect Mono Lake. Martha graduated from Stanford University *cum laude* with a degree in human biology and received her master's degree from the Yale School of Forestry and Environmental Studies. Since 1998 she has served as the cochair of the CalFed Watershed Workgroup. Martha is currently a board member for the Mono Lake Committee and the WaterReuse Foundation, and she is a member of the Manzanar National Historic Site Advisory Commission. In addition, she serves as a member of the California Bulletin 160 Advisory Committee.

Celeste Cantú

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In April 2001 the State Water Resources Control Board (SWRCB) named Celeste Cantú as the executive director for the statewide water policy board. Celeste earned her MPA degree at Harvard University's Kennedy School of Government and her B.A. degree in urban planning at Yale University.

Most recently, she was the chief consultant for the Assembly Committee on Jobs, Economic Development, and the Economy. She has also served as the California state director for the USDA's Rural Development Program. For 12 years, she was the executive director of the Imperial Valley Housing Authority, and she also served as planning director for the City of Calexico.

Celeste was born and reared in rural Calexico on the Mexican border, and her professional career has reflected her personal commitment to improving the quality of life in rural California. Over the years, she has worked with a number of organizations that focus on border issues and overcoming various challenges.

As executive director, Celeste will plan, organize, and direct all activities of the SWRCB, including developing statewide policy and coordinating efforts with the nine Regional Water Quality Control Boards. The State and Regional Boards have 1,775 positions statewide and a combined annual budget of \$831 million. The SWRCB's mission is to preserve, enhance, and restore the quality of California's water resources and ensure their efficient use to benefit present and future generations.

Nettie R. Drake

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Nettie Drake has been the coordinator of the Panoche/Silver Creek Watershed Coordinated Resource Management and Planning (CRMP) group for the past 5½ years. While with the CRMP, she has developed relationships with local, state, and federal agencies; local landowners and managers; the local municipality; local water districts; and other private organizations. In addition to the CRMP, Nettie has been a member of the California Cattlemen's Association for the past 15 years, has served as a director of the Fresno County Farm Bureau Board of Directors, and has been a board member of the Navelencia Resource Conservation District. She lives on a commercial cow calf operation in eastern Fresno County.

Nettie has a B.S. degree in animal science and industry and an M.S. degree in agricultural engineering and technology with a minor in social psychology. Both degrees are from California Polytechnic State University, San Luis Obispo. She is also a graduate of the California Agricultural Leadership Program, Class XXVI.

Thomas Mumley

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Tom Mumley is a senior water resource control engineer and the Total Maximum Daily Load (TMDL) coordinator at the California Regional Water Quality Control Board, San Francisco Bay Region. He is also the statewide TMDL program manager.

Tom has a B.S. degree in chemical engineering from the University of Massachusetts, Amherst, and a Ph.D. degree in chemical engineering from the University of California, Berkeley. He has worked at the San Francisco Bay Regional Board for 17 years. From 1986 through 1999, he managed the development and implementation of the nonpoint source control program for the San Francisco Bay Region. From 1995 through 1999, he also coordinated implementation of the Watershed Management Initiative in the San Francisco Bay Region.

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John Schramel is the president of the California Association of Resource Conservation Districts, and he also serves as the chairperson of the Feather River Resource Conservation District. In addition to a 30-year teaching career in history and forestry, John served two terms as a county supervisor in Plumas County, concentrating on water issues at the local and state levels. His education background includes a B.A. degree in history from the University of San Francisco, an M.A. degree in history from the University of Nevada, and an M.F. degree in forestry from Colorado State University.

Linda Sheehan

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Linda Sheehan is the Director of The Ocean Conservancy's Pacific Regional Office. She received a B.S. degree in chemical engineering from the Massachusetts Institute of Technology, an M.P.P. degree from the University of California, Berkeley's Graduate School of Public Policy, and a J.D. degree from Berkeley's Boalt Hall School of Law. Linda oversees The Ocean Conservancy's efforts along the west coast to protect and restore coastal waters, revitalize marine fisheries, conserve marine wildlife, and protect ocean ecosystems. In her current position and in her prior role as pollution programs director, Linda gained 7 years of experience on a variety of water quality issues including controlling polluted runoff into coastal waters, improving monitoring of coastal water quality, reducing marine impacts related to point sources and dredging, and limiting the introduction of harmful invasive species into coastal and marine habitats.

Dov Weitman

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Dov Weitman is chief of the Nonpoint Source Control Branch at the U.S. Environmental Protection Agency in Washington, D.C. He received his B.A. degree in mathematics from Yeshiva University in New York and his J.D. degree from Harvard University. After 2 years in private practice, he joined the U.S. Environmental Protection Agency, beginning with 2 years in the Water Permits Division working on the NPDES permit program. He then worked for 9 years as an attorney in EPA's Office of General Counsel, where he helped develop regulations and policies under the Clean Water Act, RCRA, and Superfund and also led the federal government's litigation efforts on a variety of cases under these laws. Since 1989 Dov has managed EPA's national nonpoint source program. He has received numerous awards from EPA, including three EPA Gold Medals.

